

REMARKS

Responsive to the outstanding Office Action, applicant has carefully studied the Examiner's rejections. The claims pending in this application are claims 4 and 5. Favorable reconsideration of the application in light of the following detailed arguments is respectfully requested.

The Examiner had previously indicated that claims 4-5 would be allowable if amended to overcome the rejection of claim 4 under 35 USC 112, second paragraph. However, the Examiner issued new grounds of rejection with this action.

Rejection of claims 4 and 5 under 35 USC §103

Claims 4 and 5 have been rejected under 35 USC 103 as being unpatentable over Hegarty in view of Peterman and Fenton.

The Examiner indicates that in his opinion, the Hegarty reference discloses a process for producing hydrogen from synthesis gas containing COS. The Examiner acknowledges that Hegarty does not teach the step of hydration of the Claus tail gas as claimed. The Examiner looks to Fenton for this feature. The Examiner acknowledges that neither of these references disclose compression and feeding of the tail gas to the CO enrichment device, and relies on Peterman for this disclosure. The Examiner states that it would have been obvious to have used flashed gas from flash drum 17.

The Examiner's attention is brought to the Hegarty reference, and specifically column 24 which was referenced by the Examiner in his rejection. Column 24 of Hegarty is used to remove traces of H₂S under essentially the same pressure conditions as found in first absorption column 10. Columns 10 and 24 are arranged in series in the

main gas line. It is not possible to enrich H_2S in the solution that is drained from column 24, as the achievable concentration is so low that the solution drained from column 24 could be used to absorb H_2S in the first column 10. Thus, column 24 of the Hegarty reference cannot be considered to act as an enrichment column.

The Examiner also opines that stripper 41 of Hegarty works at a lower pressure than preceding flash drum 17. However, while this figure does not show a pump it there certainly is no indication that one is not present. Often pumps and valves are eliminated from these types of drawings to focus on the main equipment with enough additional information to show flow directions. Additionally, the pressure is affected by the relative heights and positions of the equipment as well. This simple flowsheet thus cannot confirm that such conveying equipment is not present, and it is not possible from this sheet to assume certain pressure levels for the liquids.

In view of the above, it is respectfully submitted that column 24 of Hegarty is not equivalent to the enrichment column of the present invention.

Fenton utilizes a chemical solvent working at atmospheric pressure, which is not equivalent to or interchangeable with a process using a physical solvent at an elevated pressure. Because of the very different process conditions, Fenton does not recycle hydrated tail gas but produces elementary sulfur. The Examiner opines that it would be obvious to install the aqueous solution wash step of Fenton for the tail gas leaving the Claus plant. While it is submitted that this is not obvious, in view of the different mechanics of the plants, it is further submitted that in any matter Fenton uses an aqueous solution which is not utilized in the present invention. Therefore, even if Fenton could be combined with the primary reference, it still does not show this feature

as stated by the Examiner.

With regard to Peterman, this reference discloses a process where hydrated tail gas is conveyed to a H_2S absorber after passing through a cooling zone. After passing through the absorber the gas is released to the atmosphere. One skilled in the art would recognize that this is a SCOT scrubbing process like MDEA which operates at atmospheric pressure. The Examiner states that it would be obvious to have compression in the Claus unit for tail gas delivery, but it is respectfully submitted that one skilled in the art would have no reason to assume that a delivery to the atmosphere would need to be subject to compression. This would be extremely counterintuitive to one skilled in the art. Therefore, it is respectfully submitted that this feature is also non-obvious in view of the art of record.

Further it is respectfully submitted that the Examiner opined that hydrogenated Claus tail gas is sent to the H_2S absorber. It will feed to the flash drum 17 (CO enrichment unit). It is submitted that this feature cannot be found in any of the applied references, and it is respectfully requested that if the Examiner wishes to rely on this element that he show this feature in the prior art.

The present invention yields the highly advantageous result of having the compression of the Claus tail gas being very slight, in the 1 to 3 bar range. This advantageous feature results in a significant cost savings over known processes. Also the CO content in the offgas if the H_2S enrichment is lower, which is also an advantageous result. These results cannot be obtained through any reasonable combination of the applied references.

In view of the above, it is respectfully submitted that the present invention, as

claimed in claim 4, fully distinguishes over the applied art of record. Claim 5 is allowable based, at least, on its dependence on allowable claim 4.

It is believed that the above arguments show that the application in condition for allowance. Should the Examiner wish to modify the application in any way, applicant's attorney suggests a telephone interview in order to expedite the prosecution of the application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Mark A. Hixon', with a stylized flourish at the end.

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